


Structural variants

KJ Kamil S. Jaron

Updated date: Mar 8, 2022

 An abbreviated version of this protocol was published in Science Advances in Feb 2022

Convergent consequences of parthenogenesis on stick insect genomes

DOI: 10.1126/sciadv.abg3842

Detailed protocol

Hi,

This plot has a lot of pre-computed things in there. But the final plotting script you are looking for is here:

https://github.com/AsexGenomeEvol/Timema_asex_genomes/blob/main/7_Genome_Alignment/scripts/plot_variants_on_chromosomes.R

In our case, we called SVs using manta (things are explained in methods and with a bit more details but less polished here:

https://github.com/AsexGenomeEvol/Timema_asex_genomes/blob/main/6_Structural_Variants/README.md) and filtered with a bunch of criteria. But more importantly, the SVs were always called against a reference genome of the same species.

To get individual references to a common coordinate system, we aligned them to a common chromosomal level reference of one of the species using MUMmer (that is better explained in methods, but all the relevant scripts are here:

https://github.com/AsexGenomeEvol/Timema_asex_genomes/tree/main/7_Genome_Alignment).

So it depends what is your system, if you also have a genus with a stable karyotype and population genomic data for each focal species, you can follow the same trajectory, although I do think some of the methods could be updated these days (e.g. if you have linked or long reads there are better way to call SVs etc).

Anyways, good luck. I hope this helps.

How to cite: (Readers should cite both the Bio-protocol preprint and the original research article where this protocol was used)

1. Jaron, K. (2022). Structural variants. Bio-protocol Preprint. bio-protocol.org/prep1574.
2. Jaron, K. S., Parker, D. J., Anselmetti, Y., Tran Van, P., Bast, J., Dumas, Z., Fiquet, E., François, C. M., Hayward, K., Rossier, V., Simion, P., Robinson-Rechavi, M., Galtier, N. and Schwander, T. (2022). Convergent consequences of parthenogenesis on stick insect genomes. Science Advances 8(8). DOI: [10.1126/sciadv.abg3842](https://doi.org/10.1126/sciadv.abg3842)

Copyright: Content may be subjected to copyright.